

# Table of Contents

Project Overview Cologne Commentary on Space Law .....	V
Table of Contents .....	VII
Contents .....	IX
In Memoriam .....	XXV
Editors' Foreword .....	XXVII
Preface to Volume III .....	XXIX
List of Contributors .....	XXXI
The UN General Assembly Resolutions Pertaining to Outer Space .....	XXXV
Table of Documents .....	XLI
Table of Cases .....	LXXXIII
Abbreviations .....	LXXXV
(Un-)Official Principle/Paragraph Headlines .....	XCI
<b>The 1982 Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (DBS Principles) .....</b>	<b>1</b>
A. Historical Background and Context .....	6
B. Commentary DBS Principles .....	15
C. Future Perspectives .....	78
<b>The 1986 Principles Relating to Remote Sensing of the Earth from Outer Space (RS Principles) .....</b>	<b>81</b>
A. Historical Background and Context .....	86
B. Commentary .....	88
C. Future Perspectives .....	187
<b>The 1992 Principles Relevant to the Use of Nuclear Power Sources in Outer Space (NPS Principles) .....</b>	<b>189</b>
A. Historical Background and Context .....	196
B. Commentary .....	203
C. Future Perspectives .....	263
D. A Distinct NPS Safety Document: The Safety Framework for Nuclear Power Source Applications in Outer Space .....	267
<b>The 1996 Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (SB Declaration) .....</b>	<b>299</b>
A. Historical Background and Context .....	306
B. Commentary .....	319
C. Future Perspectives .....	355

<b>The 2004 Resolution on the Application of the Concept of the ‘Launching State’ (LS Resolution)</b> .....	363
<b>A. Historical Background and Context</b> .....	368
<b>B. Commentary</b> .....	374
<b>C. Future Perspectives</b> .....	399
<b>The 2007 Resolution on Recommendations on Enhancing the Practice of States and International Intergovernmental Organizations in Registering Space Objects (RegPract Resolution)</b> .....	401
<b>A. Historical Background and Context</b> .....	409
<b>B. Commentary</b> .....	415
<b>C. Future Perspectives</b> .....	463
<b>ESA Space Object Registration Policy</b> .....	473
<b>UNOOSA Registration Information Submission Form</b> .....	476
<b>The 2013 Resolution on Recommendations on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space (NatLeg Resolution)</b> .....	483
<b>A. Historical Background and Context</b> .....	492
<b>B. Commentary National Space Legislation Resolution</b> .....	547
<b>C. Future Perspectives</b> .....	599
<b>The 2007 Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space (COPUOS SDM Guidelines)</b> .....	605
<b>A. Historical Background and Context</b> .....	611
<b>B. Commentary</b> .....	617
<b>C. Future Perspectives</b> .....	643
<b>Czech Proposal for a UN General Assembly “Space Debris Resolution” of 2011</b> ...	653
<b>Bibliography</b> .....	659
<b>Index</b> .....	695

# Contents

Project Overview Cologne Commentary on Space Law .....	V.
Table of Contents .....	VII
Contents .....	IX
In Memoriam .....	XXV
Editors' Foreword .....	XXVII
Preface to Volume III .....	XXIX
List of Contributors .....	XXXI
The UN General Assembly Resolutions Pertaining to Outer Space .....	XXXV
Table of Documents .....	XLI
Table of Cases .....	LXXXIII
Abbreviations .....	LXXXV
(Un-)Official Principle/Paragraph Headlines .....	XCI
<b>The 1982 Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (DBS Principles)</b> .....	1
<b>A. Historical Background and Context</b> .....	6
I. Introduction .....	6
II. The Emphasis on State Sovereignty and the New World Information and Communication Order .....	7
III. Direct Broadcasting by Satellite .....	9
IV. The Consideration of Direct Broadcasting by Satellite in COPUOS .....	12
<b>B. Commentary DBS Principles</b> .....	15
<b>Preamble</b> .....	15
I. Negotiation and Drafting History .....	15
II. Commentary .....	17
<b>Operative Paragraph</b> .....	20
<b>Annex: Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting</b> .....	21
<b>Principle A: Purposes and Objectives</b> .....	21
I. Negotiation and Drafting History .....	21
1. Introduction .....	21
2. The Second and the Third Paragraph .....	22

3. The First Paragraph .....	23
II. Commentary .....	24
1. The First Paragraph – Sovereignty and Freedom of Information .....	25
a) ‘Sovereign rights of States’ and the ‘principle of non-intervention’ .....	25
b) ‘The right of everyone to seek, receive and impart information’ in the ‘relevant United Nations instruments’ .....	26
c) The Compatibility of the Freedom of Information with the Sovereign Rights of States .....	28
d) Limitations to International Direct Broadcasting by Satellite .....	29
2. The Second Paragraph – Purposes and Objectives in Narrower Sense .....	32
3. The Third Paragraph – Friendly Relations among States .....	34
<b>Principle B: Applicability of International Law</b> .....	36
I. Negotiation and Drafting History .....	36
1. General Considerations .....	36
a) National Law/International Law .....	36
b) The Palette of Applicable International Law .....	37
2. Negotiation Process .....	37
II. Commentary .....	38
1. The Notion of the Term ‘international law’ .....	38
2. The Applicability of the Provision .....	39
<b>Principle C: Rights and Benefits</b> .....	40
I. Negotiation and Drafting History .....	40
II. Commentary .....	42
1. The Right to Conduct, Authorize and Benefit from International Direct Television Broadcasting .....	43
2. Access to Technology .....	45
<b>Principle D: International Cooperation</b> .....	47
I. Negotiation and Drafting History .....	47
1. Different Functions of International Cooperation .....	47
2. Different Forms of the International Cooperation .....	48
3. Consolidation of the Text .....	48
II. Commentary .....	49
<b>Principle E: Peaceful Settlement of Disputes</b> .....	51
I. Negotiation and Drafting History .....	51
II. Commentary .....	52
<b>Principle F: State Responsibility</b> .....	55
I. Negotiation and Drafting History .....	55
II. Commentary .....	57
1. Responsibility for the Operation of Satellites .....	59
2. Responsibility for Program Content .....	59
3. Responsibility of International Intergovernmental Organizations .....	60
<b>Principle G: Duty and Right to Consult</b> .....	63
I. Negotiation and Drafting History .....	63
II. Commentary .....	64
<b>Principle H: Copyright and Neighbouring Rights</b> .....	66
I. Negotiation and Drafting History .....	66
1. Background of the Principle .....	66
2. Negotiation of the Principle’s Text .....	67
II. Commentary .....	68

<b>Principle I: Notification to the United Nations</b> .....	71
I. Negotiation and Drafting History .....	71
II. Commentary .....	72
<b>Principle J: Consultations and Agreements between States</b> .....	73
I. Negotiation and Drafting History .....	73
II. Commentary .....	76
<b>C. Future Perspectives</b> .....	78
<b>The 1986 Principles Relating to Remote Sensing of the Earth from Outer Space (RS Principles)</b> .....	81
<b>A. Historical Background and Context</b> .....	86
<b>B. Commentary</b> .....	88
<b>Preambular Paragraphs</b> .....	88
I. Negotiation and drafting history .....	88
II. Commentary .....	89
1. Preambular Para. 1 .....	89
2. Preambular Para. 2 and 3 .....	90
3. Preambular Para. 4 .....	90
<b>Operative Paragraph</b> .....	92
<b>Annex: Principles Relating to Remote Sensing of the Earth from Outer Space</b> .....	93
<b>Principle I (Definitions)</b> .....	93
I. Negotiation and Drafting History .....	93
II. Commentary .....	95
1. Principle I lit. (a) .....	95
2. Principle I lit. (b)–(d) .....	97
3. Principle I lit. (e) .....	97
<b>Principle II (Benefits and Interest of All Countries)</b> .....	99
I. Negotiation and Drafting History .....	99
II. Commentary .....	102
1. Benefits and interest of all countries .....	102
2. Economic, social or scientific and technological development .....	104
3. Particular consideration for the needs of developing countries .....	104
4. Data dissemination .....	105
5. The European contribution to making data available: Copernicus/GMES and ‘licensing’ .....	107
<b>Principle III (Applicability of International Law)</b> .....	108
I. Negotiation and Drafting History .....	108
II. Commentary .....	109
<b>Principle IV (Rights and Benefits of Sensed State)</b> .....	114
I. Negotiation and Drafting History .....	114
II. Commentary .....	115
<b>Principle V (States Promoting International Cooperation)</b> .....	117
I. Negotiation and Drafting History .....	117
II. Commentary .....	119

1. Promotion of international cooperation and participation as one <i>modus</i> of cooperation	120
2. equitable and mutually acceptable terms	121
3. New Development	121
<b>Principle VI (Arrangements Concerning Facilities)</b>	123
I. Negotiation and Drafting History	123
II. Commentary	124
III. Regional Practice in Sharing Processed Data: Spatial Data Infrastructures	126
1. Europe	127
2. USA	128
3. UNSDI	129
<b>Principle VII (Technical Assistance)</b>	131
I. Negotiation and Drafting History	131
II. Commentary	132
<b>Principle VIII (UN Promoting Cooperation)</b>	138
I. Negotiation and Drafting History	138
II. Commentary	140
1. The United Nations Organization	141
2. Relevant agencies within the UN system	143
3. Other cooperation mechanisms with relation to the United Nations or relevant agencies within the UN system	145
<b>Principle IX (Information to the United Nations/Affected State)</b>	147
I. Negotiation and Drafting History	147
II. Commentary	148
1. “State carrying out a programme of remote sensing”	149
2. “shall inform the Secretary-General of the UN”	149
3. “shall make available any other relevant information ... to any other State ... at its request”	151
4. Subsequent State practice	152
<b>Principle X (Protection of Earth Environment)</b>	153
I. Negotiation and Drafting History	153
II. Commentary	154
1. Content of Principle X	154
2. Practical examples	154
<b>Principle XI (Protection from Natural Disasters)</b>	156
I. Negotiation and Drafting History	156
II. Commentary	157
1. ‘Obligation’ to promote the “protection of mankind” and “transmit”	158
2. Scope of Principle XI	158
3. Constant or randomly occurring obligation: monitor or issue alert	158
4. Temporal element	159
5. Definition of “disaster”	159
6. Disaster monitoring and management	160
7. Sustainable development	161
<b>Principle XII (Data Access on Non-Discriminatory Basis)</b>	162
I. Negotiation and Drafting History	162
II. Commentary	165
1. Under its jurisdiction	166
2. The sensed State shall have access to data	166

3. Non-discriminatory basis and on reasonable cost terms	167
4. Access to the available analysed information	168
5. Taking particularly into account the needs and interests of developing countries	168
6. The limitations of Principle XII	169
<b>Principle XIII (Participation of Sensed State)</b>	170
I. Negotiation and Drafting History	170
II. Commentary	172
1. Request of sensed State	173
2. Principle XIII and International Cooperation relating to Space Data	173
3. Charter On Cooperation To Achieve The Coordinated Use Of Space Facilities In The Event Of Natural Or Technological Disasters (Disaster Charter)	174
4. Copernicus (formerly GMES)	174
<b>Principle XIV (International Responsibility)</b>	176
I. Negotiation and Drafting History	176
II. Commentary	177
1. "States operating remote sensing satellites"	177
2. shall bear international responsibility for their activities	178
3. Assurance that activities are conducted in accordance with the Principles and the norms of international law	179
4. Activities of governmental and non-governmental entities, and international organizations	179
5. Applicability of the norms of international law on State responsibility for remote sensing activities	180
6. Subsequent State practice	181
<b>Principle XV (Peaceful Settlement of Disputes)</b>	183
I. Negotiation and Drafting History	183
II. Commentary	183
1. "Dispute"	184
2. "arising from the application of these principles"	184
3. "shall be resolved through the established procedures for the peaceful settlement of disputes"	184
4. Subsequent State practice	186
<b>C. Future Perspectives</b>	187
<b>The 1992 Principles Relevant to the Use of Nuclear Power Sources in Outer Space (NPS Principles)</b>	189
<b>A. Historical Background and Context</b>	196
I. Introduction	196
II. Negotiations and Drafting History	200
III. Unique Characteristics of NPS in Outer Space	202
<b>B. Commentary</b>	203
<b>Preambular Paragraphs</b>	203
I. Negotiation and Drafting History	203
II. Commentary	204
1. Structure of the Preamble	205
2. The Preambular Paragraphs	205

<b>Operative Paragraph</b> .....	208
<b>Principles</b> .....	209
<b>Principle 1: Applicability of international law</b> .....	209
I. Negotiation and Drafting History .....	209
II. Commentary .....	210
<b>Principle 2: Use of terms</b> .....	214
I. Negotiation and Drafting History .....	214
II. Commentary .....	215
<b>Principle 3: Guidelines and criteria for safe use</b> .....	219
I. Negotiation and Drafting History .....	220
II. Commentary .....	222
1. Principle 3 para. 1. General Goals for Radiation Protection and Nuclear Safety .....	222
2. Principle 3 para. 2 – Nuclear Reactors .....	225
3. Principle 3 para. 3 – Radioisotope Generators .....	226
<b>Principle 4: Safety assessment</b> .....	227
I. Negotiation and Drafting History .....	227
II. Commentary .....	230
<b>Principle 5: Notification of re-entry</b> .....	234
I. Negotiation and Drafting History .....	234
II. Commentary .....	235
1. Principle 5 para.1 –Notification of Malfunctions .....	236
2. Principle 5 para. 2 – Provision and Update of Information .....	238
3. Principle 5 para. 3 – Transmission of Information to the UN Secretary-General .....	239
<b>Principle 6: Consultations</b> .....	240
I. Negotiation and Drafting History .....	240
II. Commentary .....	240
<b>Principle 7: Assistance to States</b> .....	242
I. Negotiation and Drafting History .....	242
II. Commentary .....	243
a) Systematical arrangement .....	244
b) The terms ‘affected State’ and ‘State concerned’ .....	244
1. Principle 7 para. 1 (pre-re-entry phase) .....	245
2. Principle 7 para. 2 (post-re-entry phase) .....	245
a) Sovereignty and the Rights of the launching State .....	245
b) Necessary Assistance .....	246
3. Shortcomings in the context of Principle 7 .....	247
<b>Principle 8: Responsibility</b> .....	249
I. Negotiation and Drafting History .....	249
II. Commentary .....	251
<b>Principle 9: Liability and compensation</b> .....	253
I. Negotiation and Drafting History .....	253
II. Commentary .....	255
1. Principle 9 para. 1 – International Liability for Damage Caused .....	256
2. Principle 9 para. 2 – Determination of Compensation .....	256
3. Principle 9 para. 3 – Reimbursement of Expenses .....	257



<b>Principle 10: Settlement of disputes</b> .....	258
I. Negotiation and Drafting History .....	258
II. Commentary .....	258
<b>Principle 11: Review and revision</b> .....	260
I. Negotiation and Drafting History .....	260
II. Commentary .....	261
<b>C. Future Perspectives</b> .....	263
<b>D. A Distinct NPS Safety Document: The Safety Framework for Nuclear Power Source Applications in Outer Space</b> .....	267
I. Negotiations and Drafting History .....	279
1. 2003–2007: Agreement on the Objectives, Scopes and Attributes of a New International Space Nuclear Safety Document .....	281
2. 2007–2009: Drafting of the NPS Safety Framework .....	282
II. Commentary .....	283
1. Preface .....	283
2. Introduction .....	285
a) Background .....	285
b) Purpose .....	285
c) Scope .....	286
3. Safety objective .....	286
4. Guidance for governments .....	287
a) Safety policies, requirements and processes .....	288
b) Justification for space nuclear power source applications .....	288
c) Mission launch authorization .....	289
d) Emergency preparedness and response .....	290
5. Guidance for management .....	290
a) Responsibility for safety .....	291
b) Leadership and management for safety .....	293
6. Technical guidance .....	293
a) Technical competence in nuclear safety .....	293
b) Safety in design and development .....	294
c) Risk assessment .....	295
d) Accident consequence mitigation .....	295
7. Glossary of terms .....	296
<b>The 1996 Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (SB Declaration)</b> .....	299
<b>A. Historical Background and Context</b> .....	306
I. Historical Background .....	306
II. Context .....	313
1. General Observations .....	313
2. Impact of the Declaration .....	315
<b>B. Commentary</b> .....	319
<b>Preambular Paragraphs</b> .....	319
I. Negotiation and Drafting History .....	320
II. Commentary .....	323
1. Having considered the UNCOPUOS Report and the annexed Declaration .....	323
2. Bearing in mind the relevant provisions of the UN Charter .....	323

3. Recalling OST .....	324
4. Recalling relevant resolutions relating to activities in Outer Space .....	324
5. Bearing in mind the recommendations of the second UN Conference on the Exploration and Peaceful Uses of Outer Space, and of other international conferences ..	325
6. Recognizing the growing scope and significance of international cooperation ..	325
7. Considering experiences gained in international cooperative ventures .....	326
8. Convinced of the necessity and the significance of further strengthening international cooperation .....	327
9. Desirous of facilitating the application of the principle that the exploration and use of outer space shall be carried out for the benefit and in the interest of all parties .....	327
<b>Operative Paragraph</b> .....	328
<b>Annex: Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of all States, Taking into Particular Account the Needs of Developing Countries</b> .....	329
<b>Paragraph 1 (Applicability of International Law/Benefit and Interest)</b> .....	330
I. Negotiation and Drafting History .....	330
II. Commentary .....	331
<b>Paragraph 2 (Free Determination of Cooperation)</b> .....	333
I. Negotiation and Drafting History .....	333
II. Commentary .....	334
<b>Paragraph 3 (Promoting International Cooperation/Developing Countries)</b> .....	337
I. Negotiation and Drafting History .....	337
II. Commentary .....	338
<b>Paragraph 4 (Modes of Cooperation)</b> .....	340
I. Negotiation and Drafting History .....	340
II. Commentary .....	341
<b>Paragraph 5 (Aims of Cooperation/Developing countries)</b> .....	343
I. Negotiation and Drafting History .....	343
II. Commentary .....	344
1. Development of Space Science and Technology [lit. (a)] .....	344
2. Development of Relevant and Appropriate Space Capabilities [lit. (b)] .....	345
3. Exchange of Expertise and Technology [lit. (c)] .....	345
<b>Paragraph 6 (Development Goals)</b> .....	346
I. Negotiation and Drafting History .....	346
II. Commentary .....	346
<b>Paragraph 7 (Information Forum COPUOS)</b> .....	349
I. Negotiation and Drafting History .....	349
II. Commentary .....	349
<b>Paragraph 8 (Contribution to UN Programs)</b> .....	352
I. Negotiation and Drafting History .....	352
II. Commentary .....	353
<b>C. Future Perspectives</b> .....	355
I. Current Status .....	355
II. Future Development .....	356

<b>Space Millennium Declaration: Vienna Declaration on Space and Human Development . . .</b>	<b>358</b>
<b>The 2004 Resolution on the Application of the Concept of the ‘Launching State’ (LS Resolution) . . . . .</b>	<b>363</b>
<b>A. Historical Background and Context . . . . .</b>	<b>368</b>
I. Introduction and Context . . . . .	368
II. Historical Background . . . . .	370
<b>B. Commentary . . . . .</b>	<b>374</b>
<b>Preambular Paragraphs . . . . .</b>	<b>374</b>
I. Negotiation and Drafting History . . . . .	375
II. Commentary . . . . .	375
1. Recalling LIAB/REG . . . . .	376
2. Bearing in mind the term and function of ‘launching State’ . . . . .	376
3. Taking note of the COPUOS reports . . . . .	377
4. Noting no Authoritative Interpretation or Proposed Amendment . . . . .	377
5. Noting Changed Practice in Space Activities . . . . .	378
a) Continuous development of new technologies . . . . .	378
b) Increase in the number of States carrying out space activities . . . . .	378
c) Increase in international cooperation in the peaceful uses of outer space . . . . .	378
d) Increase in space activities carried out by non-governmental entities, including activities carried out jointly by government agencies and non-governmental entities, as well as partnerships formed by non-governmental entities from one or more countries . . . . .	378
6. Desirous of facilitating adherence and application . . . . .	379
<b>Operative Paragraphs . . . . .</b>	<b>380</b>
<b>Paragraph 1 (Recommendation: Considering National Legislation) . . . . .</b>	<b>381</b>
I. Negotiation and Drafting History . . . . .	381
II. Commentary . . . . .	382
1. Authorization and Continuing Supervision of non-governmental activities . . . . .	382
2. Fulfilment of international obligations under the Outer Space Treaty, the Liability Convention and the Registration Convention . . . . .	384
3. Defining national space legislation . . . . .	384
<b>Paragraph 2 (Recommendation: Agreements Concerning Joint Launches) . . . . .</b>	<b>387</b>
I. Negotiation and Drafting History . . . . .	387
II. Commentary . . . . .	388
1. Joint launches or cooperation programs . . . . .	388
2. Agreements in accordance with LIAB . . . . .	389
<b>Paragraph 3 (Recommendation: On-Orbit Transfer Information) . . . . .</b>	<b>391</b>
I. Negotiation and Drafting History . . . . .	391
II. Commentary . . . . .	392
<b>Paragraph 4 (Recommendation: Considering Harmonized Practices) . . . . .</b>	<b>394</b>
I. Negotiation and Drafting History . . . . .	394
II. Commentary . . . . .	395
1. Consistency of national legislation with international law . . . . .	395
2. Harmonization . . . . .	396

<b>Paragraph 5 (Request: Assistance by COPUOS)</b> .....	397
I. Negotiation and Drafting History .....	397
II. Commentary .....	397
<b>C. Future Perspectives</b> .....	399
<b>The 2007 Resolution on Recommendations on Enhancing the Practice of States and International Intergovernmental Organizations in Registering Space Objects (RegPract Resolution)</b> .....	401
<b>A. Historical Background and Context</b> .....	409
I. Historical Background .....	409
II. Context .....	413
<b>B. Commentary</b> .....	415
<b>Preambular Paragraphs</b> .....	415
I. Negotiation and Drafting History .....	416
1. OST, REG, UNGA Res. 1721 B (XVI), UNGA Res. 41/66, UNCOPUOS Report and LSC Report (Preambular Para. 1–5) .....	417
2. No Authoritative Interpretation or Proposed Amendment (Preambular Para. 6) .....	417
3. Benefits for State Parties (Preambular Para. 7) .....	417
4. Information Duties by Parties/Establishment of Appropriate Registries (Preambular Para. 8) .....	418
5. Benefits of Universal Accession, Acceptance, Implementation and Observance (Preambular Para. 9) .....	418
6. New Developments (Preambular Para. 10) .....	419
7. Achieving the Most Complete Registration, Enhancing Adherence (Preambular Para. 11–12) .....	419
8. Omitted Proposal .....	420
II. Commentary .....	420
1. Recalling OST .....	420
2. Recalling REG .....	420
3. Recalling UNGA Res. 1721 B (XVI) of 20 December 1961 .....	421
4. Recalling UNGA Res. 41/66 of 3 December 1986 .....	421
5. Taking Note of UNCOPUOS Report and LSC Report .....	423
6. No Authoritative Interpretation or Proposed Amendment .....	423
7. Benefits for States Becoming Parties to the REG .....	423
8. Information Duties by Parties/Establishment of Appropriate Registries .....	425
9. Considering the Benefits of Universal Accession, Acceptance, Implementation and Observance .....	425
10. Noting New Developments .....	426
11. Desirous of Achieving Most Complete Registration .....	426
12. Desirous of Enhancing Adherence .....	427
<b>Operative Paragraphs</b> .....	428
<b>Paragraph 1 (Recommendation: Adherence to the REG)</b> .....	429
I. Negotiation and Drafting History .....	429
II. Commentary .....	430
<b>Paragraph 2 (Recommendation: Harmonization of Practices)</b> .....	432
I. Negotiation and Drafting History .....	432
II. Commentary .....	436

1. Uniformity in the Type of Information [lit. (a)]	437
a) International Designator	437
b) Time Reference for Date of Launch	438
c) Standard Units for Basic Orbital Parameters	438
d) Function of the Space Object	439
2. Additional Appropriate Information [lit. (b)]	440
a) Geostationary Orbit Location	440
b) Change of Status in Operations	440
c) Date of Decay or Re-entry	441
d) Disposal Orbit	441
e) Web Links	442
3. Designated Focal Points [lit. (c)]	442
<b>Paragraph 3 (Recommendation: Achievement of Complete Registration)</b>	443
I. Negotiation and Drafting History	443
II. Commentary	447
1. Space Activities by International Intergovernmental Organizations [lit. (a)]	447
2. Registration in Absence of Prior Agreement [lit. (b)]	447
3. Separate Registration of Space Objects [lit. (c)]	449
4. Launch Service Providers [lit. (d)]	450
<b>Paragraph 4 (Recommendation: Information Concerning Change in Supervision)</b>	451
I. Negotiation and Drafting History	451
II. Commentary	453
1. Additional Information by State of Registry Following the Change of Supervision in Orbit [lit. (a)]	453
a) Date of Change in Supervision	455
b) Identification New Owner or Operator	455
c) Change of Orbital Position	455
d) Change of Function	456
2. Additional Information by the Appropriate State Following the Change of Supervision in Orbit [lit. (b)]	456
<b>Paragraph 5 (Request: OOSA Model Registration Form)</b>	457
I. Negotiation and Drafting History	457
II. Commentary	458
1. Model Registration Form [lit. (a)]	458
2. Publish Contact Details of Focal Points [lit. (b)]	459
3. Web links [lit. (c)]	460
<b>Paragraph 6 (Recommendation: Reporting to OOSA)</b>	461
I. Negotiation and Drafting History	461
II. Commentary	461
<b>C. Future Perspectives</b>	463
I. General Comments	463
II. Special Aspects	464
1. Tracking of space objects	464
2. Process on Sustainability of Outer Space Activities	466
a) GGE Report	466
b) Long-term Sustainability (LTS)	468
c) Pre-launch Notifications under HCOC	469
3. Sub-orbital Flights	469
4. Small-Satellites	470
5. Time Frame of Registration	470

III. Proposals for an Ameliorated Practice .....	471
1. A Document Binding the Launch Service Customer before Launch .....	471
2. State-to-State Agreement in case of transfer of operation .....	471
3. Policies of IGO's Having Declared its Acceptance of Rights and Obligations ..	472
ESA Space Object Registration Policy .....	473
UNOOSA Registration Information Submission Form .....	476
<b>The 2013 Resolution on Recommendations on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space (NatLeg Resolution) .....</b>	<b>483</b>
<b>A. Historical Background and Context .....</b>	<b>492</b>
I. Introduction and Context .....	492
1. International Responsibility for space activities .....	495
2. The duty to authorize and supervise .....	497
3. Liability .....	498
4. Registration .....	500
5. Transfer of ownership and control .....	502
6. Other issues .....	503
II. Practical Background .....	503
1. Introduction: a list of national laws and regulations to review .....	503
2. Scope of Activity .....	506
3. National Jurisdiction .....	510
4. Authorization/Procedure (competent national authorities; applicable proce- dures) .....	514
5. Conditions for authorization .....	517
6. Continuing Supervision/Enforcement .....	521
a) Information provision and notification .....	522
b) The rights of access .....	522
c) The supervising authority's rights to direct, modify, suspend and terminate the activity .....	523
d) Sanctions .....	523
7. Registry of space objects .....	524
8. Indemnification to the government, TPL, insurance .....	530
9. New elements, etc. (transfer of ownership and control, etc. which are the reflec- tion from the increasing commercialization of space and resultant UNGA resolu- tions) .....	534
III. Drafting History .....	535
1. Previous Agenda Item on the Review of the Concept of the Launching State ..	535
2. Previous Agenda Item on Practice of States and International Organizations in Registering Space Objects .....	536
3. Agenda Item "General exchange of information on national legislation relevant for the peaceful exploration and use of outer space" .....	538
4. Work of the Working Group under its multi-year workplan .....	539
5. Final Report of the Working Group in 2012 .....	542
6. Discussion of the 'Recommendations' within UNCOPUOS and its Legal Sub- committee in 2012 and 2013 .....	544
7. Adoption of the Resolution by the UN General Assembly .....	545
<b>B. Commentary National Space Legislation Resolution .....</b>	<b>547</b>
<b>Preambular Paragraphs .....</b>	<b>547</b>
I. Negotiation and Drafting History .....	548
II. Commentary .....	549
1. International Obligations and Peaceful Purposes .....	549

2. Resolutions on the Concept of the Launching State and Enhanced Space Object Registration Practices .....	551
3. The Work of the UNCOPUOS Legal Sub-Committee and UN space treaties ..	552
4. No authoritative interpretation of amendment of UN space treaties .....	552
5. Non-Governmental Entities .....	552
6. Sustainable Use of the Outer Space Environment .....	553
7. The Duty to Inform and Register Space Objects .....	554
8. Consistency, predictability, and other reasons to enact national space law .....	555
9. Different approaches .....	555
<b>Operative Paragraph: Elements for consideration .....</b>	<b>556</b>
<b>Recommendations .....</b>	<b>557</b>
<b>Paragraph 1 (Recommendation: Scope of application) .....</b>	<b>558</b>
I. Negotiation and Drafting History .....	558
II. Commentary .....	559
<b>Paragraph 2 (Recommendation: Relevant national jurisdiction) .....</b>	<b>564</b>
I. Negotiation and Drafting History .....	564
II. Commentary .....	566
1. “taking into account its obligations as a launching State” .....	567
2. “and as a State responsible for national activities in outer space” .....	568
3. “should ascertain national jurisdiction over space activities” .....	569
4. “carried out from territory under its jurisdiction and/or control” .....	570
5. “by its citizens and/or legal persons established, registered or seated in territory under its jurisdiction and/or control” .....	574
6. “if another State is exercising jurisdiction with respect to such activities,” .....	575
7. “forbearing from duplicative requirements and avoid unnecessary burdens” .....	576
<b>Paragraph 3 (Recommendation: Authorization/Competent national authority) .....</b>	<b>577</b>
I. Negotiation and Drafting History .....	577
II. Commentary .....	578
<b>Paragraph 4 (Recommendation: Conditions for authorization) .....</b>	<b>581</b>
I. Negotiation and Drafting History .....	581
II. Commentary .....	582
<b>Paragraph 5 (Recommendation: Continuing supervision/Enforcement) .....</b>	<b>586</b>
I. Negotiation and Drafting History .....	586
II. Commentary .....	587
<b>Paragraph 6 (Recommendation: National registry/Information by operators or owners) ..</b>	<b>588</b>
I. Negotiation and Drafting History .....	588
II. Commentary .....	590
<b>Paragraph 7 (Recommendation: Recourse against operators or owners/Insurance) .....</b>	<b>594</b>
I. Negotiation and Drafting History .....	594
II. Commentary .....	595
<b>Paragraph 8 (Recommendation: Continuing supervision after transfer of ownership/control in orbit) .....</b>	<b>597</b>
I. Negotiation and Drafting History .....	597
II. Commentary .....	598

<b>C. Future Perspectives</b> .....	599
I. Suborbital Flights and Space Tourism .....	599
II. Small Satellites .....	601
III. European Union as a new actor in outer space .....	601
IV. Long-term sustainability of outer space activities .....	602
<b>The 2007 Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space (COPUOS SDM Guidelines)</b> .....	605
<b>A. Historical Background and Context</b> .....	611
I. The Space Debris Environment .....	611
II. Negotiation and Drafting History .....	612
1. The Early Years .....	612
2. Negotiations and Drafting Process of the UN Guidelines .....	614
3. Absence of Involvement of the Legal Subcommittee .....	615
4. The Role of Space Agencies in the Process of Establishing the Guidelines .....	616
<b>B. Commentary</b> .....	617
<b>1. Background</b> .....	617
I. Space Debris and Space Objects .....	618
II. Sources of Space Debris .....	619
III. The Concern for Future Generations .....	621
IV. Categories of Space Debris Mitigation Measures .....	622
<b>2. Rationale</b> .....	623
I. Risk Associated with Space Debris .....	623
II. The IADC Mitigation Guidelines and Other International Standards .....	624
<b>3. Application</b> .....	626
<b>4. Space Debris Mitigation Guidelines</b> .....	628
Guideline 1: Limit debris released during normal operations .....	629
Guideline 2: Minimize the potential for break-ups during operational phases .....	631
Guideline 3: Limit the probability of accidental collision in space .....	632
Guideline 4: Avoid intentional destruction and other harmful activities .....	634
Guideline 5: Minimize potential for post-mission break-ups resulting from stored energy .....	635
Guideline 6: Limit the long-term presence of spacecraft and launch vehicle orbital stages in the low-Earth orbit (LEO) region after the end of their mission .....	636
Guideline 7: Limit the long-term interference of spacecraft and launch vehicle orbital stages with the geosynchronous Earth orbit (GEO) region after the end of their mission .....	639
<b>5. Updates</b> .....	641
<b>6. Reference</b> .....	642
<b>C. Future Perspectives</b> .....	643
I. The Legal Significance of the COPUOS SDM Guidelines .....	643
1. Specification of Art. IX OST .....	644
a) Space Debris as a ‘Harmful Contamination’ of Outer Space .....	644
b) Environmental Law Analogy .....	646
2. Specification of Fault under the Liability Convention .....	647
II. Further Normative Development .....	648
1. Resolution of the UN General Assembly on Space Debris .....	648
2. Further Development and Outlook .....	651



a) Recent Initiative: The Space Debris Compendium . . . . .	651
b) Space Traffic Management . . . . .	651
c) Active Debris Removal . . . . .	652
<b>Czech Proposal for a UN General Assembly “Space Debris Resolution” of 2011 . . .</b>	<b>653</b>
<b>Bibliography . . . . .</b>	<b>659</b>
Books . . . . .	659
Articles and Conference Papers . . . . .	664
UN Publications . . . . .	684
Miscellaneous Sources . . . . .	684
Web Resources . . . . .	686
<b>Index . . . . .</b>	<b>695</b>